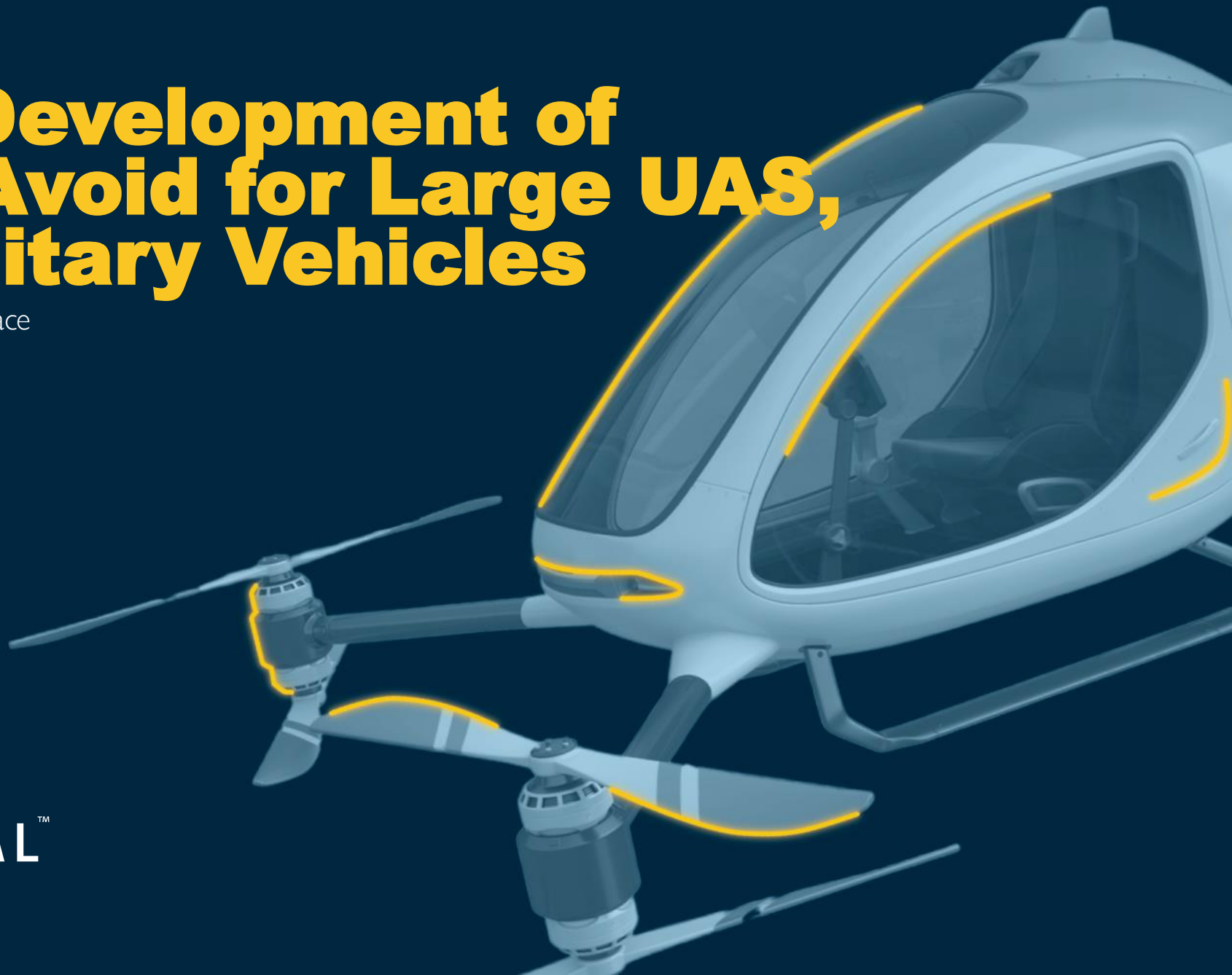
Real-World Development of Detect-and-Avoid for Large UAS, AAM and Military Vehicles

Kraettli L Epperson, CEO , Vigilant Aerospace

Leo McCloskey, VP Marketing, Echodyne



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Speakers

Kraettli Epperson

Session Speaker

CEO

Vigilant Aerospace Systems, Inc.

Leo McCloskey

Session Speaker

VP Marketing

Echodyne

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Background of FlightHorizon

- FlightHorizon PILOT: Standards-based onboard detect-and-avoid system
- Based on two NASA patents
- Multi-sensor system for onboard, ground-based or hosted in the cloud
- Projects with NASA, FAA, UAS test sites, and multiple USAF and civilian programs
- NASA Commercial Invention of the Year Award 2021
- Dual-use technology

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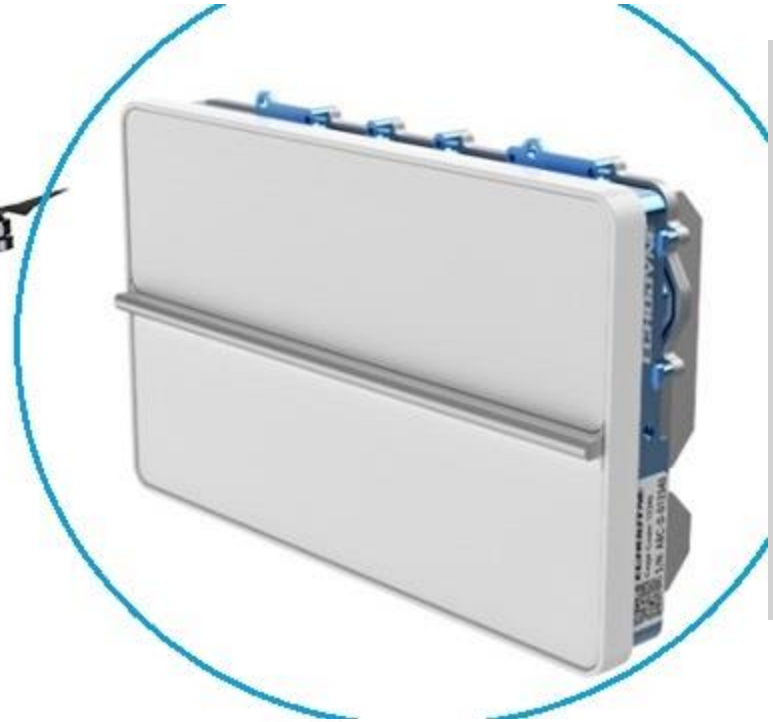



CAUTION

supernal

Anaheim

Downtown Los Angeles

24 min
24.1 miles

1 hr 10 min
26.5 miles

Tacoma

Seattle

25 min
25 miles

55 min
33.8 miles

Heathrow Airport

London

14 min
14.3 miles

1 hr 15 min
33.8 miles

SA-1 CONCEPT VEHICLE

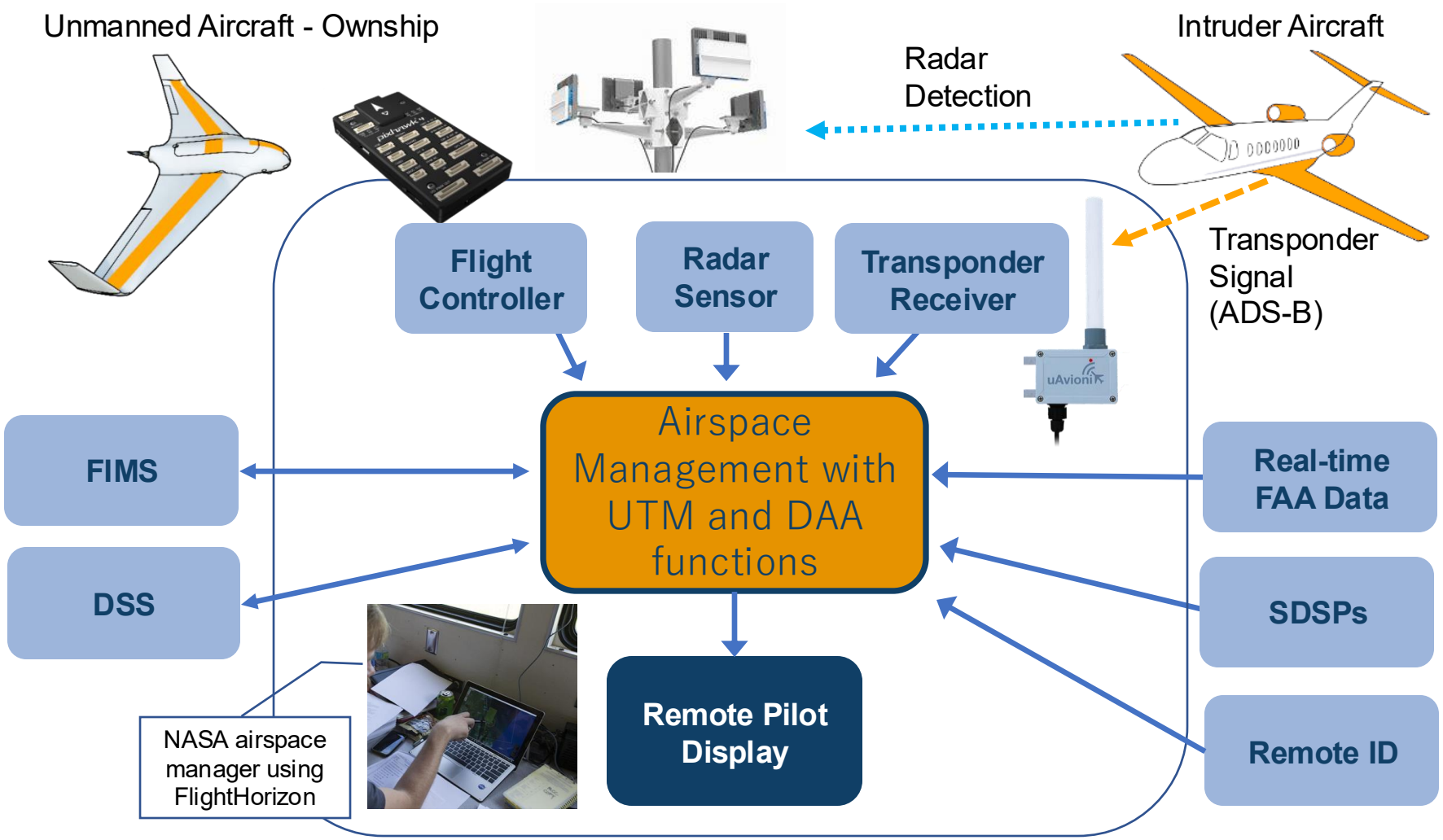
Tangerang

Jakarta

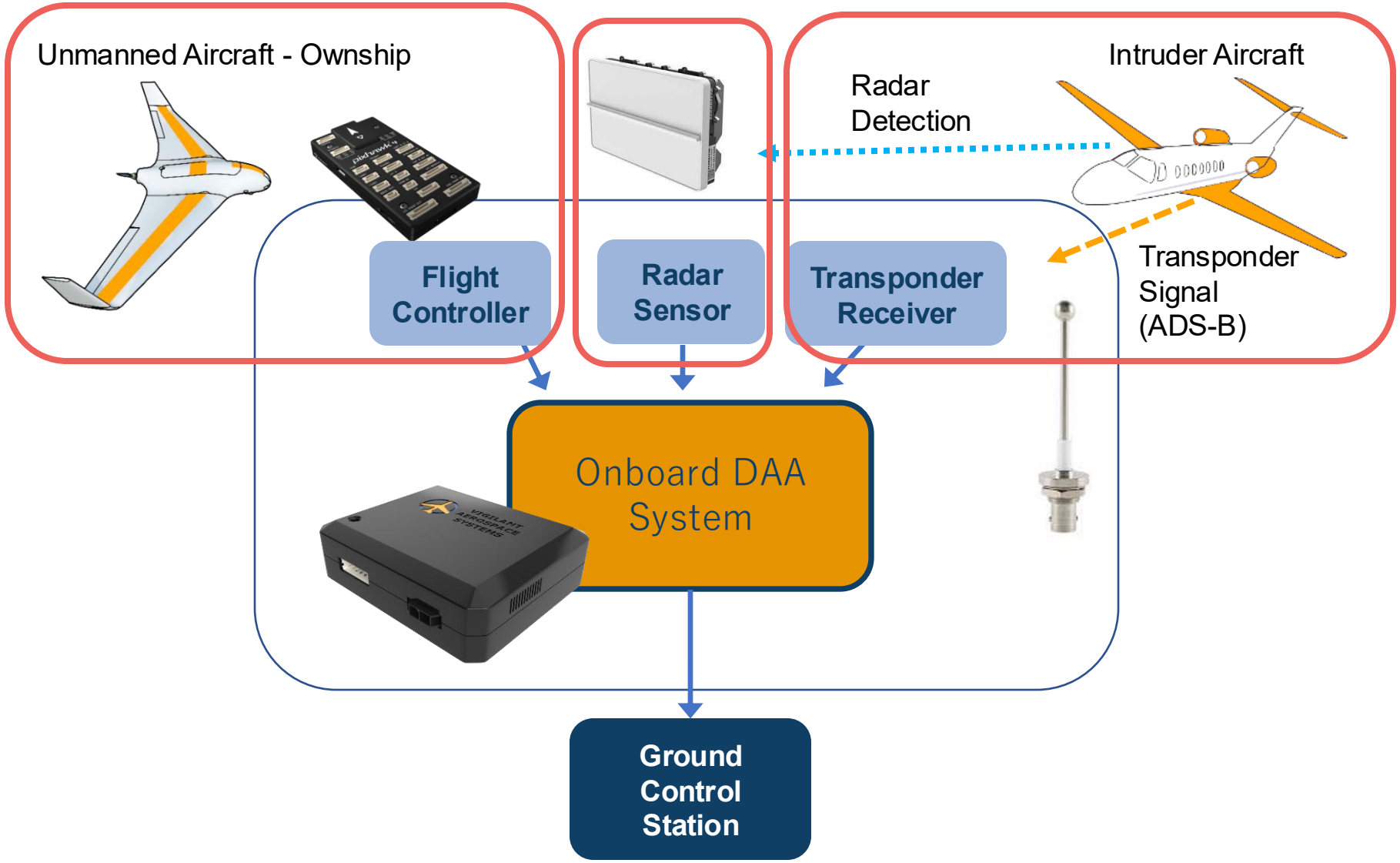
22 min
22.1 miles

1 hr 15 min
24.7 miles

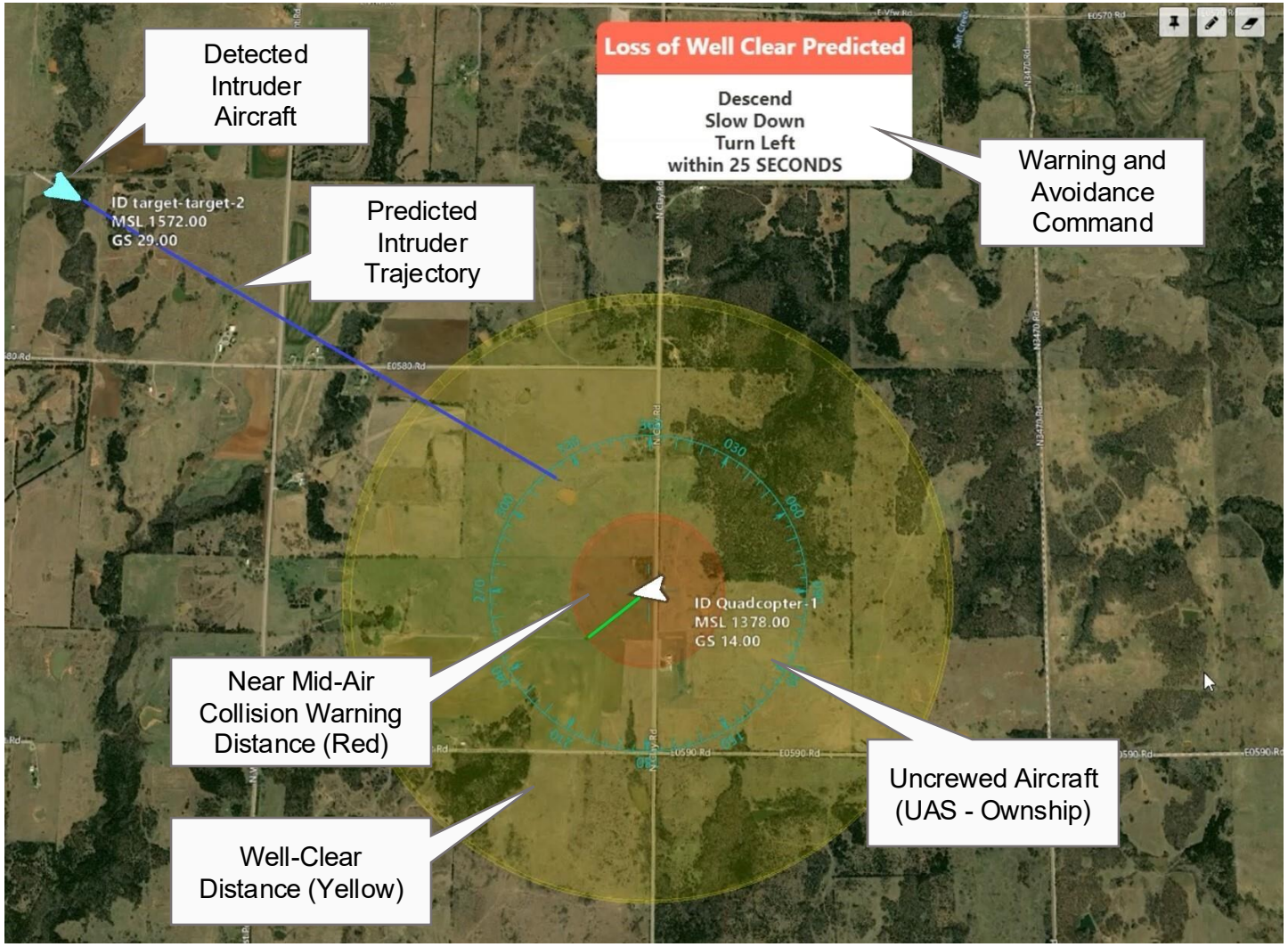
Anatomy of a DAA System – Ground-Based



Anatomy of a DAA System – Onboard



Detect-and-Avoid User Interface



Standards & Algorithms

- Uses ACAS X (Xu, sXu, Xr)
- RTCA DO-365B: Minimum Operational Performance Standards for Detect and Avoid Systems
- RTCA DO-366: Minimum Operational Performance Standards for Air-to-Air Radar for Traffic Surveillance.
- ASTM F3442: Standard Specification for Detect and Avoid System Performance Requirements

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Discussion Questions

- What are the important factors in use and certification of ground control stations for UAS and AAM DAA?
- Managing spectrum allocation and active emitters, Issue of spectrum
- Why is there suddenly growing interest on onboard DAA?
- What is the biggest challenge of putting a DAA system onboard?
- How are technology changes impacting onboard DAA?
- How are regulatory changes impacting onboard DAA?
- How are market changes impacting onboard DAA?

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AUTONOMY

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